

# THE WORLD SCANNER REPORT

A Journal of VHF-UHF Scanner Technology & Engineering

ISSN 1061-9240

Published at: COMMtronics Engineering; PO BOX 262478; San Diego, CA 92196

Copyright (c) 1991-2 (All Rights Reserved)

\$4.00

## SORRY FOR THE ERROR LAST MONTH

Every page of last month's issue has an error in the Vol/Number where it's incorrectly given as "V2N2". The correct entry should be "V2N3". You might want to make pen & ink changes to your copies to eliminate confusion in the future when we refer to certain backissues. Sorry for any inconvenience this may have caused.

## TIME TO RENEW FOR SOME

If your mailing label says, "Expire Date: May 92", then you have one more issue coming before your subscription expires. If it is convenient, you may want to renew right away to get it off your mind. Otherwise, we'll remind you again next month.

## OUR BBS GOING STRONG - LOTS OF FILES & MESSAGES

I am gratified that our new BBS, the Hertzian Intercept, is doing so well despite the very inconvenient hours. We apologize for the limited hours and you can rest assured that we're doing all we can do to get a 3rd phone line in here so it can be dedicated on a 24-hr basis. For the time being, the best time we can offer for you to get through is midnight to 6:00 am, PST, BUT just for WSR readers, here's a little clue: The BBS is automatically switched ON at 8:00 pm and OFF at 8:00 am, PST. You CAN try to get through anytime between those hours. The thing is, is that I'm usually doing computer work until nearly midnight and again starting at about 6:00 am, so take that into account if you get a continuous BUSY signal. The BBS's published hours for the World-At-Large remain midnight to 6:00am, but you dear Readers are invited to try anytime between 8pm-8am, PST. If the computer is busy, you'll get a busy signal; if it's open, the BBS will answer, so maybe it is worth a try. Our BBS number remains (619) 578-9247 for the present. We now have an official FidoNet Address for electronic mail: 1:202/731 if you have the capability for Direct NetMail.

## INTRODUCING THE WORLDWIDE FIDONET BBS NETWORK One of Hobby Radio's Finest Tools!

Speaking of computer bulletin board services (BBS), I just have to share with you some inside scoop on a vast resource of ideas, information, knowledge and opinions on hundreds of subjects, including SCANNING and SHORTWAVE LISTENING! I hope this article motivates you to put a computer on the list of tools that support your radio hobby. It might well become more useful and rewarding than your radio equipment! Imagine an engineer without a calculator; a bus driver without a bus; and a carpenter without a hammer! You just might forever after wonder

how you managed to play radio without a computer. We all know how offices managed to do very well without word processors and copiers only a few years ago. And we radio buffs managed quite nicely, too. The computer has opened doors to all areas of human pursuit thanks to automation and to a enormous volume of instantly available data and information. The five-person office of today does the work of what it took fifty to do 25-yrs ago. Today's radio hobbyist, armed to the teeth with a computer, a modem and an extra serial port is far better equipped & prepared for a massive frontal assault on the airwaves than entire legions of radio experts of only a few years ago! There are many reasons for this, including rapidly advancing technology, but ACCESS to INFORMATION is one and is the focus of this special article.

You see, information exists everywhere, but getting to it or accessing it can be a different story. Even public libraries, traditional storehouses of information, are rarely convenient and accessible at the precise moment you need a bit of data. On the other hand, a virtual treasure trove of information can be no farther away than your computer and only seconds away from your eyes and mind. Consider that it might take several minutes or longer to research a certain scanner frequency in Police Call & other directories but only a few seconds from the memory banks of your computer. Ok, you might ask, a computer is really dumb unless it is programmed with data so how do I get that data in the first place? A fair question. There are a number of ways to put information into your computer and there's no escaping the fact that the task can resemble that of assembling and maintaining a home library of books and files. I said "resemble". Actually, it's a lot different in action, requiring much less energy, time, space and cost. One of the most effortless and least costly resources of information for your computer files can be found in a public network of computer bulletin board systems called the FidoNet.

'Twas in 1984 when a few computer nerds, including Tom Jennings, started a small message network. Word of this spread like wildfire. Their system evolved into a world wide network of 8,000 nodes by 1990. Today this fabulous network has over 14,000 participating BBS's with dozens in every metropolitan area.

The FidoNet vaguely resembles Citizens Band and Amateur radio in the sense that it is a medium through which thousands of people communicate with others of like interests across town, state, country, geographical and political borders and even oceans, all from the comfort of the home or office. If you have a telephone line, a computer, a modem and software to run the modem, then the cost to tap into this leviathan storehouse of information

can be virtually nothing, and certainly very low. Chances are that one or more Fido BBS's are located in your local telephone calling area. You only need call and log on to any Fido BBS to be connected into this worldwide network. If that BBS is located within your local calling area, there is usually no cost. You see, the FidoNet consists of more than 14,000 amateur BBS's around the world with over 10,000 in the USA and Canada alone. It is expressly forbidden to use the FidoNet for commercial purposes. Therefore, if you can find a Fido BBS in your local calling area, chances are you won't have to spend a dime to link up with the world! The SysOps are private people, and just like us, are very dedicated to their hobby. They pay for their computer equipment and phone costs just like we do. A rare few BBS's may levy a monthly membership fee, but these guys are either very stupid or else they have a system so well setup that a fee is worth it. In any case, most BBS's are FREE access and therefore you can freely connect with the world!

Think of FidoNet as a CB radio with over 500 channels or "Echoes", each of which is dedicated to or focused on a special interest topic. One Echo in particular and in which you will be keenly interested is the "*Shortwave Echo*", which is dedicated exclusively to Shortwave Listening and VHF-UHF Scanning. Other "Echoes" are dedicated to Ham Radio, Broadcast radio, satellite TV, knitting, coffee-lovers, law, medicine, arts, crafts, etc. There are Echoes for religion, politics, adult subjects, recreation, travel, computers and of course, hundreds more. The one in which we are interested is the *SHORTWAVE ECHO*.

No single Fido BBS carries all 500+ Echoes, so you might have to search out a few BBS's before you find one that has the *Shortwave Echo*. You might not find any local BBS's that carry it, but don't despair; you have options: (1) call other Fido BBS's in nearby toll areas. If you call at night, tolls can be rather low and painless to your budget, or (2) Contact the System Operator (SysOp) of each BBS in your calling area and ask if he/she will carry the *Shortwave Echo* for you or help you find a BBS that does! A primary objective of a Fido-BBS is to carry Echoes that will draw and appeal to their patrons. The SysOps KNOW it's wise to cater to the needs of their patrons, so they will usually have an open mind to your request. As you contact first one BBS and then another, ask the SysOp if any BBS's in your local area carry the *Shortwave Echo*. SysOps have a comrade spirit, so they pretty much know each other and which Echoes are carried by the various BBS's. You'll find one in a short time, if you don't luck out on the first few tries. Now, here is one scenario of how the FidoNet *Shortwave Echo* works:

I log into my local Fido "node" (BBS) every morning to read all the new shortwave & scanner messages that have come in since the day before. When there is a message of interest to me or which needs my response, I'll usually compose a reply on the spot. Throughout the day, my BBS dumps the day's traffic back upstream to a "Hub", which in turn dumps the traffic from a number of nodes further

upstream to a "Host" which then dumps a greater volume of traffic into a "Gateway". The Gateways then circulate all that traffic around to the various "Hosts" and "Hubs" and in turn, back down to the "nodes". So if I send out a message today, it will circulate throughout the system during the day and that night so that everyone who participates in the *Shortwave/Scanner Echo* will see my message the following day. If a reply is made at that time, I'll probably receive it the following day.

If it sounds complicated, relax, because you don't really care what happens or how it happens. All you have to do is read the daily messages which interest you and respond if and when you want. It will come to you, after a few sessions, how easy it can be to affiliate with thousands of other radio hobbyists. You will find people from all walks of Life participating on the FidoNet *Shortwave/Scanner Echo*, including experts, dealers and Who's Who kinds of people right down to the greenest neophytes. Again, relax, because it's an informal setting where the greenest neophyte and the most grizzled expert are on equal footing. Participation on the *Shortwave/Scanner Echo* is a great way to pick up the inside scoop on everything in radio from what's hot and what's not to hints, tips, tricks, and answers to your most profound questions about everything from Antennas to Impedance.

In addition to the public message system, FidoNet also has a semi-private NetMail system for SysOps to send E-Mail between themselves, off the side and away from the Public Message areas. Many SysOps allow their users NetMail privileges, too. Fido's NetMail system is a lot like E-mail in other information services; a handy, quick and pleasurable way to communicate with others on a reasonably private basis. Some SysOps restrict NetMail privileges so it may not be available, depending.

Least well known, but very potent is FidoNet's informal "library system" called *FREQ* or "File REquests". Most BBS's maintain large data file storage areas filled with everything from freeware and shareware computer programs to volumes of information on various subjects. Since radio is a hobby and a pursuit of specialized interest, most BBS's won't stock radio related information in their File Sections unless the SysOp is a radio buff like us... BUT...there are a number of radio-exclusive specialty BBS's around the world which stock hundreds of megabytes worth of radio information on every subject you can think of, again from antennas to impedance, including product reviews, mods, and resource lists. Most Fido BBS's can File Request (*FREQ*) so it may be possible for you to get the SysOp to obtain certain data files for you if you know what to ask for and where they can be found. You can also get files direct, once you know how. Think of this file system as a huge "library" system which can be operated right from your keyboard. This is getting a little advanced for an introductory article, but I wanted to give you an overview of what the FidoNet is all about.

First, you have to get connected. Most any computer with a 1200 baud or faster modem will do, though turtle's pace

300-baud modems can work fine with many systems. Next, you have to find a FidoNet BBS. There are several ways to do this. If you already do modem/BBS work, then you have a head start. Just ask the SysOps of your favorite BBS's where you can find a Fido BBS. You might already be affiliated with one and not be aware of it! If you are new to modeming, then one sure bet is to call a computer store and ask if they have a list of local BBS's in your area. Most will and you'll be on the way. Again, just log on to a few BBS's and ask the SysOps about FidoNet. You will find one quicker than you think, because SysOps are thicker than fleas and they know who's who and who specializes in what. When you find a Fido BBS and you surely will, then determine if it carries the SHORTWAVE echo and if not, ask or beg for it.

If worse comes to worse and you just can't find a Fido BBS in your area, send me a SASE and TWO loose extra postage stamps along with a mention of your telephone Area Code. I will prepare for you a list of Fido BBS's in your Area, arranged in telephone number order so you can easily determine which are local. It is a good bet that you'll have 10 to 100 or more from which to choose! For example, the Michigan (313) Area Code has 135 Fido BBS's; my (619) area code has a hundred.

This introduction has only scratched the surface of the FidoNet and how it can be used to enhance your radioing pleasure. I could not possibly explain it to the detail that I would like, even if I used all eight pages of this issue. You're just going to have to try it for yourself. You'll see. And if you have any trouble, let me know and I'll see what I can do to smooth the way for you. In summary, let me just say that the FidoNet and a computer can bring a worldwide radio club right onto your desk along with a library of info and data. Every morning I rise to a steaming cup of fresh ground Colombian Supremo coffee and a roundtable discussion with radio enthusiasts around the world from Germany, Netherlands, England, Australia, Canada and virtually all 50-states of the USA. Even as I awaken, a wealth of info and data lies at my fingertips. All this...and much more can be at YOUR fingertips, too! If this doesn't motivate you to join the Fido Radio Gang, write to me and tell me what will!

Now, continuing with 1992's focus on computers to enhance the enjoyment & rewards of radio, Perry Joseph joins us to build upon the foundations he laid down last month:

SCANNER FREQUENCY MANAGEMENT - Part II  
by Perry Joseph, President, DataFile, Inc.

Last month, I discussed several "manual" solutions for keeping track of scanner frequencies and their licensees. In this article, I will discuss the use of computers as a more efficient means of maintaining frequency lists.

My first experience with microcomputers dates back to 1983 when I worked as a salesman for industrial video gear at a local video store. The owner decided to carry Apple Computers. The first Apple was a humble product.

Loading data and software into the computer required a modified cassette deck. It took several minutes just to get the darn thing to produce it's first screen of info. But it was a cheap, new toy for the consumer market. I never took the Apple Computer too seriously. It was great for playing games. Let's face it, anything beat "Pong" in those days. The Apple's primary drawback was speed: a lack of it. It wasn't until we purchased an IBM "XT" microcomputer that I started to actually use one for anything other than entertainment. Even then, it was only equipped with floppy disk drives.

A year or so later, we purchased an IBM "XT" with a hard disk system so large amounts of data could be maintained at a reasonable cost. The microcomputer had found its place in the small business environment. In the latter part of 1986, I decided that microcomputers were the next great product of the electronics industry. I resigned my job, purchased a computer system and started DataFile.

Any basic "Computer 101" course or book, categorizes software into five basic groups: word processing, record keeping (database management), communications (using a modem, etc.), spreadsheets (accounting, math, etc.) and graphics (computer aided drawing, games, etc.). The first two categories, word processing and record keeping, can be applied to manage our scanner frequency lists.

My first experience with computerizing frequency lists was to enter the data into a word processor. A Word Processors is a quantum leap for anyone who has ever used a typewriter to make letters & lists. Word processors allow you to enter, manipulate, format, print, store and retrieve text. Other features might include word wrap, scrolling, insertion, deletion, move, search and undo.

Naturally, I created lists of names and frequencies in the word processor. Now I could change a name or a freq and reprint an updated list without the scribble of "handwritten days past". Changing a name or a freq was easy since my WP had a "search and replace" feature.

A word processor had definite advantages over handwritten notes, but lacks a few needed functions. Real control and "manipulation" of frequency data requires a "record keeping system", better known as a "database" program.

Database programs allow you to search, add, delete, sort, update, print and do some math calculations. What's that? Word processors do the same thing? There is some truth to that with exception that databases tend to do more and do it better when it comes to pure record keeping.

Database managers offer standard groups of features which can be selected through choices displayed in the menus. Enhanced features may include creating custom screen displays, custom reports and displaying "help" screens with menu choices and explanations to guide the new user.

Database programs generally treat information as some form of a "record". As an example, a frequency record



might hold the following information, typically organized in columns or descriptions called "Fields" or Categories.

	LICENSE	TRANSMTR	TYPE OF	CLASS OF	CALL	
FREQ	NAME	LOCATION	USER	SERVICE	SIGN	MISC
----	-----	-----	-----	-----	-----	-----

A database program affords the power to sort or "index" groups of records alphabetically, numerically and sometimes even chronologically (date/time order). Sorting or indexing allows us to look at or retrieve records in a number of ways. Records can be sorted by one or more field names, typically called "key field(s)".

For example, if we sort our records by licensee name first and frequency second, and if there are a number of records with the same licensee name, the sorted list will group these names together in name order followed by their related frequencies in numerical order. Using this same sorted list, we can print our records on a select or "filtered" basis. For example, we could print a report for all licensee names that begin with "A", or all licensees on frequencies between 460-470 MHz.

The winning edge of using a database manager over a word processor in organizing my frequency list was speed and the ability to manipulate my information. A data base let me look up and change records with little effort. I could easily compare my list with another list without concern for the order of the "other list". Checking for duplicate frequencies was a snap. I went on to customize my screens so that a record consisted of the specified data. I created enumerable customized reports to enhance my enjoyment of scanning.

Next month I will tell you about some of the more popular database programs, some considerations that go along with purchasing one and the type of database software used to create ProScan™, a Frequency Management System.

=====

**A SCIENTIST CALLS OUT FOR HELP FROM RADIO HOBBYISTS!**

=====

I am conducting research into experiments that record low frequency electromagnetic disturbances associated with earthquakes. I would ask you to post the attached article or, if you have a newsletter, to include it, provided you feel the subject matter is appropriate for your members. I am looking for anyone who has been or wants to be involved in amateur research in this field. Thanks in advance for your help. Rspy, Vince T. Migliore, Editor

#### EARTHQUAKES AND ULF MONITORING

Earthquakes are sometimes preceded by/linked with curious electromagnetic signals in the lowest frequency ranges. These signals can be detected by equipment in many radio shacks. I am trying to collect data on and stimulate amateur experiments aimed at monitoring ultra-low freq (ULF) phenomena that may be associated with earthquakes.

A growing body of scientific evidence now points toward the possibility of predicting major seismic events based on low frequency transients. Probably the most widely known investigation was conducted by a team headed by Anthony Fraser-Smith of Stanford's Star Lab. This study found distinctive patterns in the 0.05 to 10 Hertz range (yes, Hertz, not kHz.). The Fraser-Smith study was based on experiments conducted in the Soviet Union, which in turn grew out of folklore from China and Japan. Joe Tate and William Daily found anomalies in the 1-10 kHz range, while others report signals to 100 kHz. Among amateur radio operators there are many anecdotal incidents of earthquake transients all the way up to the HF range.

My idea is to create a network of amateur monitors for the following ranges:

1. The 0.01 to 12 Hertz range. Joe Tate, and Anthony Fraser-Smith have done successful experiments in this range, but they are extremely difficult and expensive. The Schumann resonances come into play, man-made interference is a problem and specialized digital equipment may be necessary.
2. The audio portion of the electromagnetic spectrum, 200 Hz to 15 kHz. Conversion Research, PO Box 535, Descanso, CA, has an excellent broad range, untuned receiver on the market for only \$48, and this may work well for our purposes.
3. A tuned receiver for about 8 to 50 kHz, with about a 2 to 3 kHz bandpass. This is the range that several experimenters, including Jack Coles of Santa Clara, California, claim is effective. There have also been some Japanese experiments in this range.
4. A tuned receiver for 30 to 150 kHz, with adjustable Q for selectivity or broad coverage, again of 2 to 3 kHz bandpass. A simple converter may be applicable here. Again several experimenters have found possible quake precursors in this range.

Of course we'll have to include coverage of antennas, amplifiers, tuning circuits and interfaces to computers or strip chart recorders.

I think the best approach is to focus on one design in each category. I have at least some skills in writing and research, but I need help with circuit design and engineering. I know, too, that some amateur radio operators and engineers are already tinkering with these ideas. My request therefore is to hear from anyone who has been or wants to be involved with low frequency monitoring for earthquake precursors.

I am presently editor of a newsletter dedicated to earthquake prediction, amateur geo-physical monitoring and earth mysteries. For a free sample issue and a ULF bibliography, please send a large SASE (\$0.75) to me:

Geo-Monitor #400, 65 Washington St, Santa Clara, CA 95050



Geophysicists are at a loss to explain any mechanism that might account for seismic electromagnetic and magnetic disturbances but some theories include the piezo-electric effect of crushing & bending of quartz-containing rock in the earth's crust; the flow of magma beneath the crust that may contain metals, and the interaction of the earth's magnetic field with the solar wind. None of these models however is fully satisfactory. By organizing a good sized network of amateur monitors, we may be able to shed some light on this exciting new science.

#### REFERENCES

1. Radio Earth: The Radio-Seismic Connection. Joe Tate, Whole Earth Review, Fall, 1990.
2. Sferics: a Beginner's Guide to Whistlers, Tweeks and Other Natural Radio Sounds and how to hear them. Mike Mideke, Whole Earth Review, Fall, 1990.
3. Build the 'Whistler' VLF Receiver. Tom Fox, Popular Electronics, July, 1989.
4. Amateur VLF Observations. W.C. Johnson, QST magazine, March, 1960.
5. ULF, ELF and VLF Electromagnetic Field Observations Close to the Epicenter of the 7.1 Loma Prieta Earthquake: Possible ULF Precursors. A.C. Fraser-Smith, A. Bernardi, P.R. McGill, M.E. Ladd, R.A. Heliwell, and O.G. Villard, Jr., STAR Laboratory, Stanford University.

#### ----- THE LATEST TECHNICAL EVALUATION OF THE ICOM R-1 UPDATE FROM APRIL '92 MONITORING TIMES ARTICLE -----

I have completed an intermediate technical evaluation of the ICOM R-1, DC-to-Daylight pocket scanner; an awesome little package of dynamite! My investigative focus was on the alleged and much-talked-about deficiencies of this unit; not on its numerous strengths & good points, which are well documented elsewhere. The result of my analysis is that I will not be adding the R-1 to my arsenal of monitoring equipment at any time in the near future; not because of any new discoveries or the deficiencies that I found, but because the danged thing is so tiny and micro-miniaturized that it is next to impossible to do anything with it, either to cure its few shortcomings or to add anything new and exciting.

The R-1 has three serious problems: susceptibility to (1) strong signal overload, (2) adjacent channel interference mostly on AM in the LF-MF-HF bands where selectivity is vital and (3) spurious interference caused by internal mixer and/or intermod products. Poor selectivity in this unit results from the barn-door-wide 455 KHz IF filter on the DET-A board, which is used in common with both the AM and NFM modes. The 15 KHz width of this filter is more or less satisfactory for VHF/UHF NFM requirements but much too wide for LF-MF-HF AM shortwave bands where signal separation can be as little as 3 KHz. Imagine then, up to five different signals on one channel. No thank you!

The exact source of the spurious interference is elusive but might be caused by dirty local oscillators (VCO) and/or an inferior "clean-up" filter, FI-1, in the main unit. It seems that a company in England, RAYCOM, is doing a mod that eliminates most of the objectionable spurious interference on the VHF/UHF bands. I suspect RayCom's technique involves replacement of FI-1, a 10.7 MHz 2nd IF crystal filter with perhaps a better unit. It's possible that the stock ICOM filter is defective or out of spec if RayCom's modification actually replaces FI-1.

So what about a remedy for inferior Adjacent Channel Rejection? I think it is possible to replace the 455 KHz IF filter on the DET-A board with a narrower much sharper IF filter. I won't attempt that approach at this time for several reasons. The problem as I see it, is two-fold: first there is the matter of space or available real estate in the R-1; zilch. All decent IF filters of which I am aware are somewhat larger than the stock FI-1, and therefore will not find an easy residence. But even if one is found, a serious problem will remain!

A useful IF filter for LF-MF-HF AM operation, say with a 6 KHz bandwidth, will be too narrow for most NFM signals, especially at VHF & UHF. A 6 KHz IF filter will clip FM signals that are deviated more than 3 KHz, as is usually the case. Therefore, an ideal remedy for poor Adjacent Channel Rejection is the installation of a narrow IF filter that is auto-switched INTO the circuit whenever the AM mode is selected and OUT for NFM. An ideal approach that won't cause more problems than it resolves is not yet at hand because of space limitations and probable unavailability of a miniature IF filter. Fig-1 depicts what I think is a correct approach, but schematic diagrams don't always convey the mechanics of things.

I am uncomfortable at performing mods that can't be made fairly professional as if they were designed there in the first place. Therefore, I will not perform modification services to the R-1 in the near future, and at least not until more information and experience on the unit become available to me. At this time, I view any easy remedy for the poor selectivity as a probable cause of other problems where there were none before; limits to the utility & usefulness of the VHF-hi & UHF bands where a full bandwidth of the NFM IF filter is usually required.

There is the matter of strong signal overload which pretty much eliminates the use of external antennas and preamplifiers for the R-1. It is not feasible to remedy this deficiency. An exemplary reason for the overload problem is that the RF Front End of the R-1 does not employ AGC (Automatic Gain Control), therefore it can operate only over a limited range of amplification before it is driven into cutoff and saturation, either/both of which produce symptoms of overload including clipping, distortion, desensitization, spurious & pseudo signals across the band. The only practical remedy for this deficiency is to reduce the signal strength into the R-1, either by a less efficient antenna or by an attenuator between the antenna and the receiver. Neither is what I

call very appropriate for a serious receiver. Nice job, there ICOM, but no banana for you yet!

One possible remedial approach to the AM selectivity problem of the R-1 (for you adventuresome hackers), will be to intercept a signal trace in series with FL-1 on the DET-A board, either into or out of the filter. A suitable point on this circuit trace will be broken and a narrow, sharper 455-KHz IF filter wired between the trace cut so as to be in series with FL-1. To make the new filter auto-switch in and out, depending on AM or NFM mode, the IN & OUT terminals of the new filter should also connect to the IN & OUT terminals of a CMOS bilateral switch such as a 74HC4066 with the control pin of the 4066 connected to the Q-7's Collector either Base of Q-5 on the DET-A board. This is a +5v control signal for the NFM/WFM modes (0-v for AM) which will enable the 4066 switch to bypass the new filter in the NFM/WFM modes, and to be active in the AM mode. Some refinement to this approach may be necessary for ultimate best results, but it sure seems the way to go at the moment for the researcher.

For those who can't visualize this technique, Figure 1 offers a schematic diagram of the DET-A board and the method. Theoretically speaking, here is what happens: An SPST switch is connected to the IN & OUT terminals of the new filter. When the switch is closed, the filter is effectively shorted out, thereby routing signals around the new filter. When the switch is open, signals have to pass through the filter. The Collector of Q-7 or either Base of Q-5 on the DET-A board offers this Mode Control Signal, which can be used to control a 74HC4066 bilateral switch to bypass the new filter as desired; i.e., OUT for AM, and IN (shunted) for NFM & WFM.

NOTE: A 74HC4066 chip is rather large for the R-1, so a suitable alternative might be a TC4S66F (IC-10 in the PRO-2006) or a replacement TC4S66F (IC-2 on DET-A of the R-1). The TC4S66F is a very small single section SMT CMOS bilateral switch.

In summary, the front-end overload problem cannot be remedied. AM selectivity can be greatly improved by simple replacement of the 455 KHz IF Filter but this will degrade the performance of the NFM mode in the VHF-UHF bands. Depending on your interest, the tradeoff of one serious problem for another is not a good way to go. The technique offered in Fig-1 will improve AM selectivity but not at the expense of degrading NFM/WFM performance.

The jury is still out on spurious interference problems and more research and analysis is required before we settle on a solution. I keep hearing that RayCom of England has solved this problem, but they're not sharing the "secret" with anyone, so I would like to hear from you who had this procedure done. I would like to test and observe an R-1 that was modified by RayCom. At this point, my concern is that in solving one problem, they may have created other, possibly worse ones. Figure 1 offer a clue for eliminating the spurious interference.

Finally, we have to look with a jaundiced eye at the feasibility of invading and hacking the R-1. After careful review of the innards of the R-1, I can only conclude that due to its compressed design and lack of working room, there is a substantial chance of serious error, mechanical and/or electrical, associated with an invasive effort. This makes a commercial hacking venture quite unfeasible and at best, very risky to the hacker. Not many pro's can afford to replace a mis-hacked R-1 at current prices, you see. Neither can hobbyists, so any amateurish invasion with the idea of correcting the R-1's selectivity problems is ill-advised at this time. I do not say that it's impossible since further research and development may yet disclose a viable approach. Any such are not apparent right now.

#### RUMORS OF A NEW PRO-2006(A)

A source that I will call "reliable" because he claims to be an eyewitness, recently confided to me that he saw a PRO-2006 that somehow didn't "look right". Sure enough, instead of a DIMMER SWITCH, it had a switch in the same place, but marked "LIGHT". According to the source, pressing that switch caused the blue background display lighting to turn on and off! He also noted the Radio Shack catalog number on the rear label to be 20-145A, which certainly would imply a recent production change somewhere along the line. My source is not a technical type so he was not able to assess his observation unit for any possible internal changes or upgrades. If YOU READERS see or hear of this variant PRO-2006A, please let me know what you learn, otherwise.....read on.....

#### RUMORED THAT THE PRO-2006 IS BEING DISCONTINUED

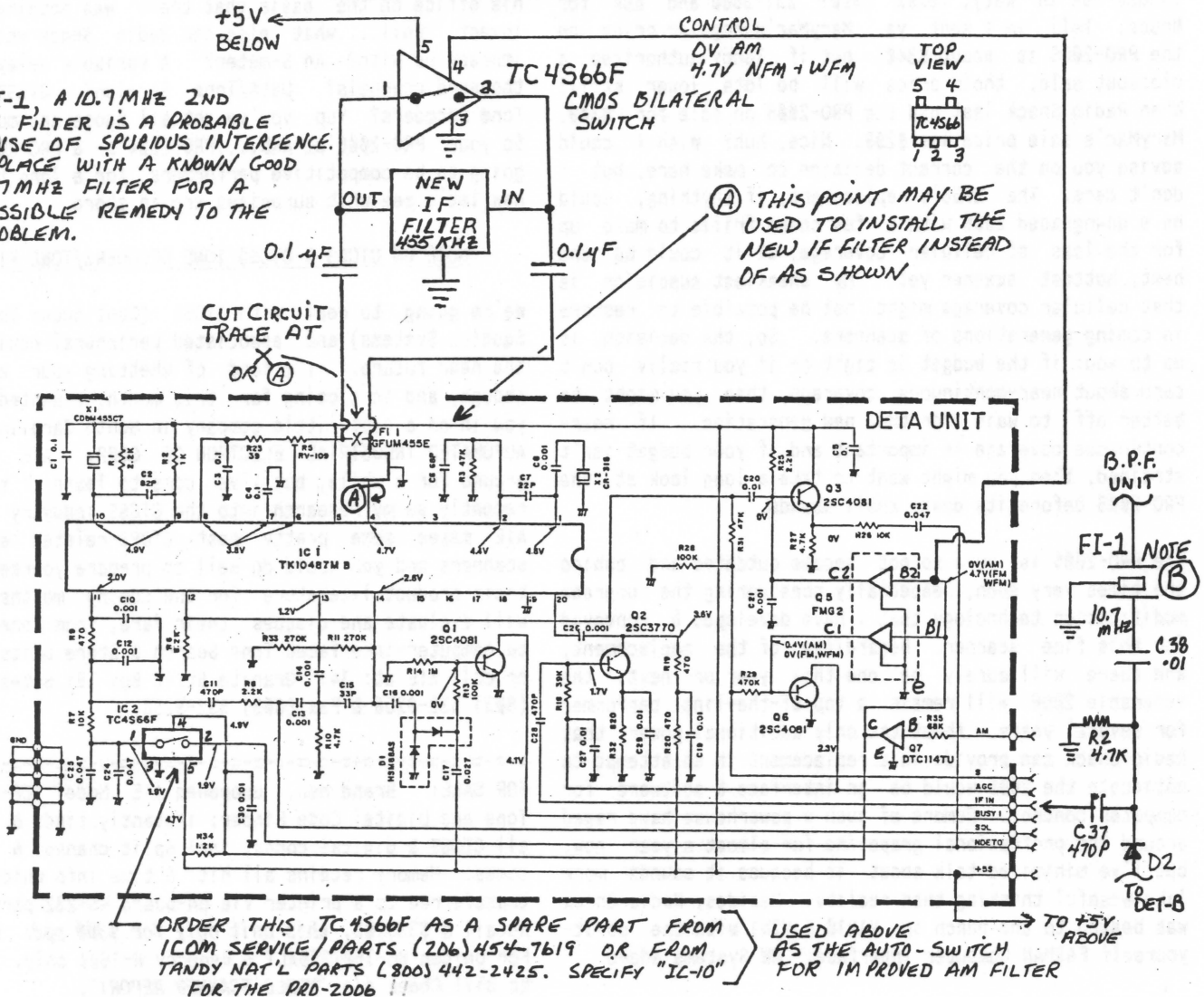
A Radio Shack store manager confides that the PRO-2006 might be discontinued. He reports receiving a notice from a distribution center to get his order placed soon for all needed PRO-2006 stocks because they were being discontinued. Ordinarily, I would not print this info here, but an exception is made because I know how Radio Shack's system works. You see, the PRO-2005 was replaced in exactly the same manner in the same time period of the year....May, 1990. I worked part time for a Radio Shack store then and saw how the process worked. Lots of new merchandise for the coming year's catalog that begins in August of each year starts to appear, unannounced, on the shelves in the April-May period. If a replacement for the PRO-2006 is on the way, then expect a sale on existing stocks and watch for the replacement to hit the shelves between May & August. I do not have a feel for what the replacement, if any, will be like. Given the current drive in Congress to outlaw the manufacture & importing of cellular-capable receivers, it is possible that any replacement will have cellular coverage permanently locked out! It might very well be that the PRO-2006A discussed above was an early advance model of the replacement. I just don't know any more to tell you at the moment, BUT..if you were planning to acquire one,

- = Continued on Page 8 = -

# Figure 1 ICOM R-1 PROBLEM RESOLUTION GUIDE & NOTES

UPDATED INFO OVER MY ARTKLE IN APRIL '92  
ISSUE OF "MONITORING TIMES".

(B) FI-1, A 10.7 MHz 2ND  
IF FILTER IS A PROBABLE  
CAUSE OF SPURIOUS INTERFERENCE.  
REPLACE WITH A KNOWN GOOD  
10.7 MHz FILTER FOR A  
POSSIBLE REMEDY TO THE  
PROBLEM.



"THE WORLD SCANNER REPORT" (c) 1991-2; V2N4 - April, 1992; Page 7

CONFIDENTIAL SUBSCRIPTION ORDER: Please print clearly

V2N4

NAME:

STREET:

CITY:

STATE:

ZIP:

PHONE: ( )

AMT ENCLOSED: \$

THE BELOW QUESTIONS ARE OPTIONAL BUT WILL HELP US HELP YOU!

Radio Interests? (Put YEARS OF EXPERIENCE in each block that applies)

VHF-UHF Amateur CB Shortwave Professional

Scanning? Radio? Radio? Listening? Radio?

Career/Profession

Or Occupation:

List makes & models of your scanners & other radio equipment:

:

:

Describe your technical abilities & interests; use reverse as needed.

:

:

03/27/92

SUBSCRIPTION RATES & ORDER BLANK

V2N4

USA RATES: (Canada +10%; Other Foreign +20%-surf or +40%-Air)

WSR BACK ISSUES ONLY

USA \$

Check Items

1991 Single copies; your choice: 1 ea \$ 4.00

1991 (1st 6-mos, Jan-May/Jun) 5 ea \$15.00

1991 (2nd 6-mos, Jul-Nov/Dec) 5 ea \$15.00

1991 (1st Year, Jan-Nov/Dec) 10 ea \$25.00

WSR CURRENT SUBSCRIPTIONS ONLY

1992 Single copies; your choice: 1 ea \$ 4.00

1992 (Jan-May/June) 6-mos 5 ea \$15.00

1992 (Jan-Nov/Dec) 1-yr 10 ea \$25.00

1992-3 (Jan 92-Nov/Dec 93) 2-yr 20 ea \$45.00

OTHER LITERATURE AVAILABLE

HOBBY RADIO BUYER'S DIRECTORY \$14.95 ppd surf

SCANNER MOD HANDBK, Vol-1: \$17.95 + \$3.00 S&H

SCANNER MOD HANDBK, Vol-2: \$17.95 + \$3.00 S&H

\* Canada US\$4 S&H; Other Foreign US\$5 S&H; extra for Air Mail

MAKE REMITTANCE PAYABLE IN US FUNDS TO: COMMTRONICS ENGINEERING

Enclose a #10 S.A.S.E. and one loose extra stamp if you want  
hobby info & personal reply! Business/trade inquiries exempt.

USE OUR NEW BBS FOR QUICK RESPONSE



this may be the time, especially if they go on sale. Watch for one soon! Meanwhile, if you want to take advantage of a regular low price on the PRO-2006 and even lower prices when a sale is authorized, contact MaryMac Industries in Katy, Texas (800) 231-3680 and ask for Bruce. Tell 'im I sent ya. MaryMac's regular price on the PRO-2006 is about \$340, but if Tandy authorizes a closeout sale, their price will be lots lower still! When Radio Shack last had the PRO-2006 on sale for \$349, MaryMac's sale price was \$299. Nice, huh? Wish I could advise you on the correct decision to make here, but I don't dare. The 2006's replacement, if anything, could be a downgraded 2006 with a few cheap frills to make up for the loss of cellular coverage, OR it could be the best, hottest scanner yet. My sneakiest suspicion is that cellular coverage might not be possible to restore in coming generations of scanners. So, the decision is up to you: if the budget is tight or if you really don't care about near-continuous coverage, then you might be better off to wait for the new generation. If near-continuous coverage is important and if your budget isn't strained, then you might want to take a long look at the PRO-2006 before its death knell sounds.

The PRO-2006 is sure to not become outdated and behind the times very soon, especially considering the upgrade modification technology that I have developed & conveyed for this fine scanner. Regardless of the replacement, and there will surely be one this year or next, the venerable 2006 will remain a top-of-the-line performer for several years. About the only additional power that Radio Shack can provide in a replacement in an attempt to antique the 2006 would be an interface & software for computer control. Rumors of such a powerhouse have raged around the professional grapevine for almost a year now, but I've minimized talk about it because it sounds more like wishful thinking than reality. Besides, Radio Shack was beaten to the punch in V1N10 & V2N1 with the do-it-yourself FATMAN Computer Interface; RW Systems added

insult to injury with their SC-3 Interface Kit; and Datametrics pulled a coup d'etat with their Computer Aided Scanning System. Sometimes I feel like that stupid Commissioner of Patents a hundred years ago, who resigned his office on the basis that there was nothing else to invent. Well....what else can Radio Shack whip out to impress us with? An S-meter? A variable delay? A few thousand channels? Data/Tone Squelch? CTCSS & other Tone Decoders? Yup, you've got all those and much more! So your PRO-2006's, AND....PRO-2004's & PRO-2005's are going to be competitive performers for a long time yet. Now let's see what surprises are in store.

#### MORE ON CTCSS & CTCSS TONE DECODERS/TONE FINDERS

We're going to deal with CTCSS (Continuous Tone Coded Squelch Systems) and associated peripheral equipment in the near future. I'm fond of whetting your appetites, though, and in closing for this month, I wanted to clue you in on a neat little company in South Carolina called AUTOMATED INDUSTRIAL ELECTRONICS CORP. AIE has been around for a while, but I've come to learn of them only recently as my research into the CTCSS industry widened. AIE makes some pretty neat CTCSS-related stuff for scanners and you would do well to prepare yourselves with their product literature for the coming months when we will evaluate and discuss their fare, from Tone Finders to computer-interfaced Tone Search & Store units. Write or call AIE at: 141 Granite St/PO Box 70; Batesburg, SC (803) 532-9256 & Fax (803) 532-9258.

=====

FOR SALE: Brand new, unopened AIE Model TCF-3M CTCSS Tone and Digital Code Finder; instantly finds & displays all CTCSS & digital codes, incl split channel & inverted codes. Memory retains all hit & time info which can be transferred to a printer via on-board RS-232 port. More! Retail @ \$339.95, **this unit only for \$300 ppd**; w/manual. For Uniden BC-760/950XLT & Regency R-1600 only. Inquire to Bill Cheek c/o "WORLD SCANNER REPORT".

=====

"THE WORLD SCANNER REPORT" (c) 1991-2; V2N4 - April, 1992; Page 8

=====

COMMTRONICS ENGINEERING  
"THE WORLD SCANNER REPORT"  
PO BOX 262478  
SAN DIEGO, CA 92196-2478

ISSN 1061-9240

## IN THIS ISSUE

- + TIME TO RENEW APPROACHING: Next issue the last for May-92 Subscriptions
- + Try different hours for the Hertzian Intercept BBS: (619) 578-9247
- + INTRODUCING: The worldwide FidoNet BBS Network; Hobby Radio's finest tool!
- + Scanner Frequency Management, Part II; gets deeper!
- + A scientist calls out for HELP from radio hobbyists
- + Radio signals as warning signs of impending earthquakes? Maybe!
- + The latest technical evaluation of the ICOM R-1: problems & deficiencies
- + ICOM R-1 problem resolution guide & notes
- + Rumors of a new PRO-2006(A)? the evidence
- + Rumored that the PRO-2006 will be discontinued soon!

V2N4  
920327

**FIRST CLASS MAIL**